Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1 – 22 (Cancelled).

Claim 23 (Previously presented): A projection exposure apparatus comprising:

an illumination optical system which irradiates a pattern formed on a mask with an exposing energy having a wavelength in an ultraviolet range; and

a projection optical system which projects an image of the pattern of the mask at a predetermined position on a substrate; characterized by

a first detector, disposed in a vision field of the projection optical system outside an image projection region in which an image of the pattern of the mask is projected, which receives at least a portion of the exposing energy passing through the projection optical system and travelling toward the substrate and output a detection signal in accordance with an intensity of the exposing energy received;

a second detector which detects an intensity of the exposing energy in a predetermined position in a light path extending from a light source disposed in the illumination optical system

to the mask and which output a detection signal in accordance with the intensity of the exposing energy detected;

a variation detector which detects a variation in an attenuation factor with respect to the exposing energy, which occurs in a light path of the illumination optical system or in a light path of the projection optical system; and

an exposure controller which corrects an exposing condition for exposing the substrate so as to provide the substrate with a desired exposure amount, when such a variation in the attenuation factor is detected by the variation detector.

Claim 24 (Previously presented): The projection exposure apparatus as claimed in claim 23, wherein the first detector further comprises a reflecting member disposed at a top end on the image plane side of the projection optical system and outside the image projection region; and a photoelectric element for photoelectrically detecting a portion of the exposing energy reflected with the reflecting member.

Claim 25 (Original): The projection exposure apparatus as claimed in claim 24, wherein the reflecting member is composed of a full reflection mirror plane so as to block an arrival at the substrate of the exposing energy passed through outside of the image projection region.

Claim 26 (Previously presented): The projection exposure apparatus as claimed in claim 23, wherein the exposure controller is to correct at least one of an intensity of the exposing energy emitting from the light source, an attenuation factor of an attenuator disposed in the

illumination optical system, and an irradiation time for irradiating the exposing energy to the substrate, in accordance with the variation in the attenuation factor detected.

Claim 27 (Previously presented): The projection exposure apparatus as claimed in claim 23, wherein the light source comprises an ultraviolet laser light source which radiates a light in a wavelength width set so as to avoid an absorption band of oxygen in a wavelength region shorter than 250 nm.

Claim 28 (Previously presented): The projection exposure apparatus as claimed in claim 23, further comprising: a movable stage mechanism which moves in a plane parallel to the image plane of the projection optical system in a state in which the substrate is loaded thereon; and a third detector, disposed in the movable mechanism, for detecting an illuminance of the exposing energy obtained in an image projection region on the image plane side of the projection optical system; wherein the exposure controller is to correct the exposing condition on the basis of a result of detection by the variation detector and the third detector.

Claim 29 (Previously presented): The projection exposure apparatus as claimed in claim 23, wherein the variation detector further comprises an operation processing circuit for sequentially saving data corresponding to a ratio of each detection signal by the first detector to each detection signal by the second detector at every predetermined time and for computing a periodical change rate of the variation in the attenuation factor on the basis of the data saved.

Claim 30 (Previously presented): The projection exposure apparatus as claimed in claim 23, wherein the variation detector further comprises a fourth detector disposed in a space between the projection optical system and the substrate so as to enter in an image pattern region in a vision field of the projection optical system or to be evacuated therefrom; and the variation in the attenuation factor is detected by irradiating a transparent portion around a pattern region of the mask with the exposing energy and photoelectrically detecting the light passed through the transparent portion of the mask, when the fourth detector is inserted into the image projection region.

Claim 31 (Previously presented): The projection exposure apparatus as claimed in claim 30, wherein the exposure controller is to calibrate a detection signal corresponding to the variation in the attenuation factor to be detected by the first detector on the basis of a signal detected by the fourth detector.

Claims 32-41 (Cancelled).

Claim 42 (Previously presented): A manufacturing method for forming a circuit device on a substrate, comprising:

a lithographic process for projecting and exposing a circuit pattern formed on a mask to be irradiated with an exposing energy of an ultraviolet region having a wavelength of 250 nm or less to each of plural positions on a substrate through a projection optical system;

detecting a variation in an intensity of the exposing energy resulting from a variation in an attenuation factor of the projection optical system by detecting at least a portion of the exposing energy passed through an outer region of an image projection region in a vision field of the projection optical system and travelling toward the substrate side at a position close to an image plane of the projection optical system, the image projection region being a region in which an image of the circuit pattern of the mask is formed; and

setting an exposing condition for transcribing the circuit pattern onto the substrate at a predetermined exposure amount on the basis of the variation in the intensity of the exposing energy detected;

wherein a deterioration in precision for controlling the exposure amount due to the variation in the attenuation factor of the projection optical system is reduced, and the variation in the attenuation factor occurs when the image of the circuit pattern is projected and exposed sequentially onto the substrate.

Claim 43 (Original): The manufacturing method for forming the circuit device as claimed in claim 42, wherein a first detector is disposed at a top end portion on the image side of the projection optical system in order to detect a variation in the intensity of the exposing energy resulting from the variation in the attenuation factor of the projection optical system.

Claim 44 (Original): The manufacturing method for forming the circuit device as claimed in claim 43, wherein a second detector for detecting the intensity of at least a portion of the exposing energy passing through the image projection region is disposed on a movable stage for

holding the substrate thereon and for transferring the substrate in a two- dimensional way; and a result of detection by the first detector is calibrated on the basis of a result of detection by the second detector.

Claims 45 – 59 (Canceled).